

Impact of Globalization, Foreign Direct Investment inflows, and institutional factors on Income Inequality in selected SAARC countries

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ABSTRACT

The broad objective of this study is to evaluate the impact of globalization, Foreign Direct investment (FDI), and institutional factor on income inequality in the selected SAARC countries using panel data of all SAARC countries except Maldives over the period of 2002-2018. Gini coefficient is used as an independent variable to measure income inequality, whereas, the dependent variables are trade openness used for globalization and corruption for institutional factor along these two variables, impact of FDI is also studied against income inequality. GDP per capita and government expenditure are also included in the model as controlled variables. According to the result of Hausman and Lagrange multiplier test, the Fixed-Effects Model was preferred over the Random-Effects Model for regression analysis. The empirical result shows that globalization has negative impact on income inequality. While FDI and institutional factors expressed in term of corruption have positive impact on income inequality. For this purpose, policies are needed to curb corruption and convey the positive impact of FDI to the people. Moreover, to further promote globalization to minimize the inequality in income as possible.



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1. Introduction

In this modern age, if we are hungry, we can eat Italian, Chinese, continental cuisine or either we can go to KFC or McDonald. Interestingly all these items on menu list are from different countries but we can easily get it under one roof in one country, how is it possible? The answer to this question is globalization. The world is now become so closely connected that all the differences have narrowed down. Economies opened up and businessmen and firms from one country have access to the foreign markets without any hurdles and difficulties. This openness of economies and liberal policies for foreign business to come into the country and invest is called globalization and the foreign investment

in the country is called foreign direct investment. It will not be wrong to say that globalization and FDI are connected to each other. This new era of globalization and massive flow of FDI from developed countries into developing countries have raised concern in Economic researchers and policy makers that how they are going to effect the income distribution in the developing countries and whether they would increase or decrease already prevailing income inequality in developing countries (Georgantopoulos et al. 2011).

Income inequality is the inadequate income distribution within a country or simply the income gap between the individual of a country. It is evident that the income gap in the world has been increasing very rapidly. A combined wealth of 500 wealthy people of the world has more wealth than 2.5 billion poor people of the world (Watkins et al., 2005). Globalization and FDI have contributed a lot in income inequality in the world due to integration of international business and corporation (London and Robinson, 1999, Gordon, 2005, Zhang and Zhang, 2003; Jai, 2002). Asia has seen boom of globalization and remains a major region for FDI inflow. Income of the Asian countries and its resident increases with the economic boom like in China, Hong Kong, South Korea, India Singapore, Malaysia etc. but with economic growth, globalization and inflow of FDI, Asia has also witness a major income gap in the last several decades (Zhuang et al. 2014). Most countries of Asia are developing economies having weak institutions and accountabilities law which provide space for corruption another cause of income inequality.

Globalization is the openness of economies and trade that can lead to employment and reduction in poverty but whether it reduces income inequality or not, it's a controversy. There is a clear division between the economist, in which one side thinks that trade liberalization and globalization increase income inequality in the world, especially in developing countries. While the other argues, that in short run globalization can indeed lead to an increase in income inequality but with trade openness poverty will reduce and employment would generate, which will reduce income inequality in the long. The study further states that with globalization certain groups of people income swell up i.e. 500 richest individuals wealth is more than 2.5 billion poor people of the world. However, globalization helps world trade to increase, an average of 7 percent annually (Bukhari et al. 2006).

History of developing countries shows that the rich benefit more than the poor. The major issue of the developing world is income inequality. To overcome income inequality and fair distribution of wealth in developing countries it needs effective governances. Governance is the key to distribute resources and to alleviate poverty and reduce the income gap. An efficient and effective institutional framework is critical for the sustainable growth and management of the country's economic and social resources. With good governance and effective policies, a country can achieve economic growth and fair income distribution (Shafique et al. 2006). Uslaner (2001) says that corruption is due to a lack of democracy, free and fair election and accountability. Study further state that corruption brings inequality and inequality brings corruption. Similarly. Income inequality positively depends on corruption while negatively depend on the economic growth of a country (Matti 2014). Gupta et al. (1998) explained that, corruption increases income inequality through lower income growth. Moreover, rich people influence public policies and get public policies that help to increase their wealth at the expense of the poor. The study further proved that a 0.78 percent increase in corruption can reduce the income growth of the poor by 7.8 percentage points a year.

Asia has seen a tremendous amount of economic growth in the last five decades but the overall welfare of the people does not maintain pace with economic activity. The poor benefit very little from economic activity than the rich. South Asia accommodates a large number of poor in the world while

this region has produced hundreds of billionaires. The economic indicators of inequality show high polarization in this region. South Asian has accommodated 34.4 percent poor of the world. Major Powers of the region; Pakistan and India feature in the top 10 countries in the world losing the most tax revenue by providing the facility of tax exemption to rich and powerful. On average, in South Asia, women are paid 24 percent fewer than men (south Asia inequality report 2019). Moreover, SAARC countries failed to utilize the economic growth of their counties to facilitate the poor and tried to eliminate the income inequality in their countries. The Gini coefficient, increases in all 8 countries of SAARC except Bhutan from 2005-15 (SWIID Database) which means that the region as a whole is moving toward greater economic inequality as shown in FIGURE 1. Gini coefficient of Afghanistan increases from 31.7 to 32.1, similarly from 34.4 to 34.8 in Bangladesh whereas in India Gini coefficient increase from 47.5 to 49.7 whereas the increase in Nepal is very significant it increases from 38.7 to 49.7 which is an alarming increase for Nepal. Moreover from 47.8 to 48.2 in Sri Lanka and Pakistan, the value remains the same throughout the decade that is 34.5. However, in Bhutan the value slightly decreased from 41.5 to 41 but it is to note here that Gini coefficient reaching 40 indicates that in society most of the wealth is accumulated in the hands of a handful of people, while the majority of the people are deprived of economic welfare and basic needs and services. Table 1.1 shows that the Gini coefficient of all the countries of SAARC are either above 40 or slightly below 40 which clearly indicates how bad the situation of income inequality is in SAARC countries.

Table 1.

Comparison of Gini coefficient of SAARC countries in 2005 and 2015								
Years	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri-lanka
2005	31.7	34.4	41.5	47.7	38.7	38.7	34.5	47.8
2015	32.1	34.8	41	49.7	0	49.7	34.5	48.2

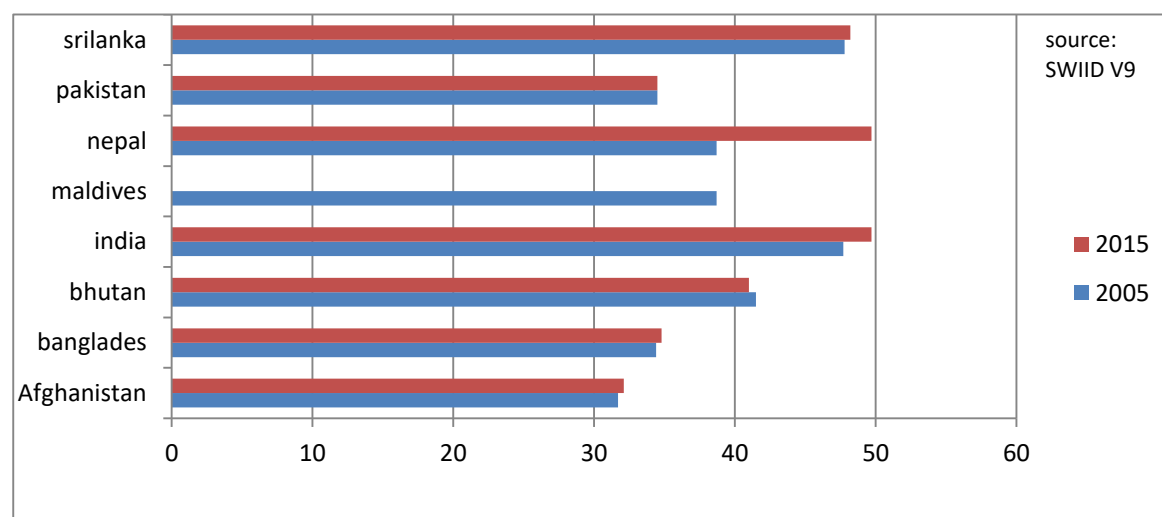


Figure 1: Comparison of Gini Coefficient of Selected SAARC Country. Source: Standardized world income inequality database

Source: : Standardized world income inequality database

SAARC countries seen a boost in the inflow of FDI in the last two decades the data of FDI, net inflow from 2010-19, based on WDI World Bank Database, is shown in TABLE 2. The average trend in the Inflow of FDI increases over the mentioned period as seen in Figure 2. Foreign direct investment and integration of economies in Asia have increased the income of the people and economies grow

Table 2.FDI, net inflow (BOP, current US\$)								
Year	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Srilanka
2010	190774432	1232258247	75274009.03	27396885034	216468946	87741712	2022000000	477559000
2011	52173421	1264725163	31141614.86	36498654598	423530664	94022157	1326000000	955920000
2012	56823660	1584403460	24380673.57	23995685014	227976867	91954196	859000000	941116591.2
2013	48311346	2602962095	20433631.07	28153031270	360816336	74179633	1333000000	932551317.6
2014	42975262.5	2539190940	23534931.75	34576643694	333375218	30402677	1887000000	893628980.3
2015	169146608	2831152765	6450953.85	44009492130	297975993	51895700	1673000000	679655644.2
2016	93591315.3	2332724781	11884162.35	44458571546	456639057	105996376	2576000000	897049375.9
2017	51533896.77	1810395804	-	16553759.95	39966091359	457808314	196265099	1372723043
2018	119435105.7	2421626238	2649712.662	42117450737	575658028	68186671	1737000000	1614044009
2019	23404553.65	2003078501	13032399.58	50610647354	891144415	185554759	2218000000	758186663.2
Source: WDI(Harvard University Database)								

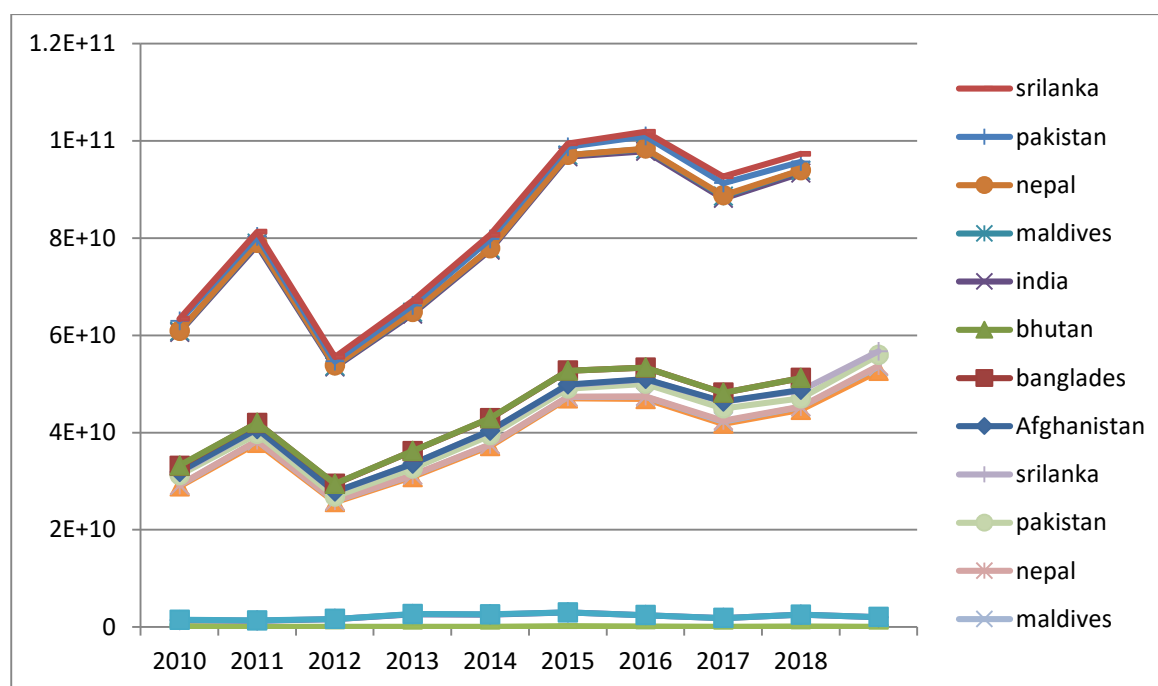


Figure 2: FDI, net inflow (BOP, current US\$). **Sources:** WDI

SAARC countries have always scored worse in the Transparency International Corruption Perception Index. Figure 3, shows the index of SAARC countries from 2010 to 2019. In the given period the SAARC region has shown very little progress. In CPI, 100 means very clean while 0 means, highly corrupt. The ranking of all SAARC countries is not so encouraging except Bhutan. Similarly, India has also shown a significant increase in its index. Corruption is the root cause of all the economic ill of and countries. The high rate of corruption in SAARC countries has adversely affected the economies of these countries. The rich people using their money get economic gains and friendly economic policies. They also get all economic services by dent of their money depriving the poor of their basic needs, right, and services. This is another reason for high-income inequality in SAARC countries. The increase in the Gini coefficient is directly related to the increase in corruption in any country.

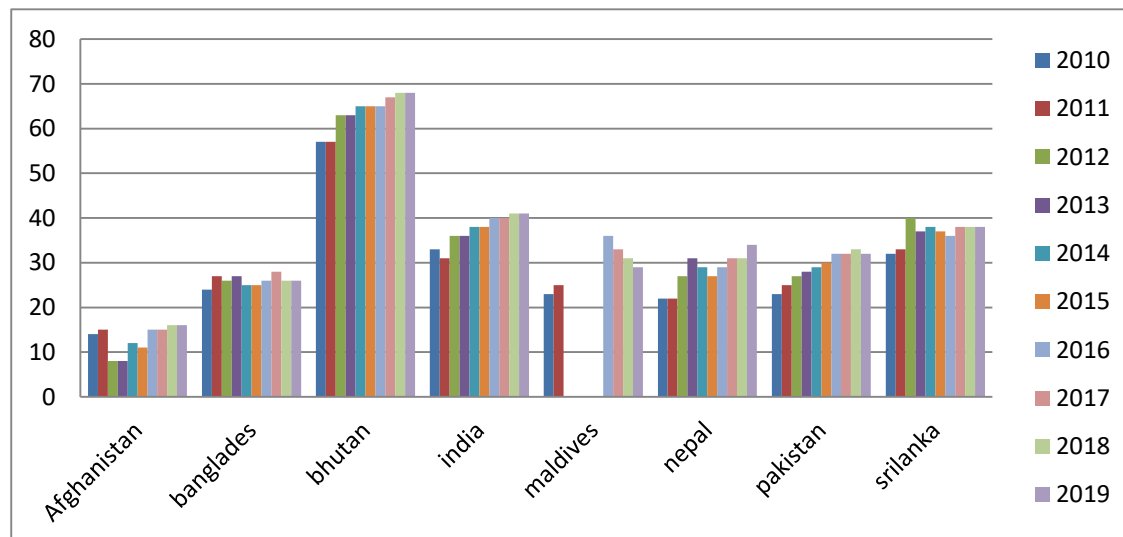


Figure 3: Comparison of Corruption Perspective Index in SAARC Countries 2010-19. Source: CPI- Transparency International

Globalization, FDI and corruption have impact on income inequality (Gupta, 1998; Choi 2006; Bandari 2007; Bukhari et al 2016; Imran & Zuhaib 2019). However, there are controversies on their impacts either it is negative or positive. To understand correct direction of these factors, this study will use SAARC countries data to empirically address this controversy.

The goal of the study is to understand Globalization, FDI and corruption and its impact on income inequality in selected Asian countries. We will take Gini coefficient to measure the income inequality in relation with the above mention factors and to empirically determine the impact and direction of globalization, FDI and corruption on income inequality. The study will also revive the existing work and findings. Furthermore, the study will help in understanding situation of income inequality in the SAARC countries and will also provide in-depth understanding of the impacts of globalization, FDI and corruption in the given countries. From the most of the existing literature and research, we knew that all these factors negatively impact the income distribution however, there are some contrary researches which will be analyzed in-depth in the study.

The remaining part of the study, consist of literature review, data and the methodology, result, results and discussion, and recommendations and conclusion.

2. Existing Literature

Empirically and theoretically globalization, foreign direct investment and corruption have a diverse impact on the income inequality of a country. Each of the above-mentioned factors has a multidimensional relationship with income inequality. We will review the work of the researchers on individual factors, impact under a separate heading.

2.1. Globalization Impact on Income Inequality

Globalization is the word that explains the integration of the economies. How the firms find foreign markets and ways to minimize their cost of production by getting cheap labor and raw materials from the developing countries. The spread of these giant firms of developed countries has raised challenges for the small firms of the developing countries. They struggle to find a place for themselves in the global market (Çelik & Basdas 2010). Wang et al. (2009) studies the impact of globalization on income inequality but the result of the study is against the prevailing belief that income inequality is increased by globalization. In the said study, income inequality is measured by the Gini coefficient and FDI, trade openness and spending of government on social insurance are taken as independent variables. The period of data is 1978-2006 in china. The result shows that income inequality is not caused by economic globalization rather it improves the income distribution.

Lindert and Williamon (2001) analyzed that globalization has not only impacted the income inequality within the nation but between the nation too. According to the study, the countries that try to exploit the advantages of globalization by introducing liberal policies gain a lot from globalization while those countries that do not accept the liberal idea of trade, gain the least from globalization. The differences in the trade policies by different countries raised income inequality between different nations. The study also discusses the history of globalization from the first Globalization Boom 1820-1914 till the study date. Wang et al. (2009) explain the impact of globalization in the context of China. According to the study after the cultural revolution of China, the country has opened its economy to the world and due to these reforms of globalization; china has pulled out millions of people from

poverty. Since 1970, the poverty rate has down from 84 percent to 15.9 percent but if when looking at the other side of stats we observe that the Gini Coefficient has climbed from 0.16 in 1978 to 0.47 in 2006 which means that with globalization; the income inequality in China has increased by a considerable amount. With liberal trade policies, the rich people get more benefit by expanding their business in developing countries and earning more. However, with the liberalization of trade wages increase and poverty reduced. The study also states the liberal governments have more focus on trade liberalization than income distribution. Moreover, the study also examines the foreign direct investment impact on income inequality; the study explains that with globalization, FDI in developing countries increases and increases per capita income but the FDI only increases the wages of skilled labor, not unskilled labor which ultimately leads to an increase in income inequality.

Georgantopoulos and Tsamis (2011) state that, the interaction of people of different countries enhances with passages of time due to globalization. This interaction of people has a great impact on the income distribution of people. The study also states that globalization not only adversely affects the income distribution but also the cultural livelihood and way of life of people. There are two views on the impact of globalization; one side argues that globalization has increased income in general. FDI helps emerging economies to reach the standards of the developed countries (Brown et al., 1993; Tsai, 1995; Figini & Gorg, 2006). Similarly, with international trade developing economies becomes able to optimally utilize human and natural resources to gain economic growth (Wood, 1995). While the other side argues that globalization has further widened the gap between rich and poor despite the increase in general income (London & Robinson, 1999, Gordon, 2005, Zhang & Zhang, 2003). The study aimed to empirically prove the globalization impact on income inequality in Hungary. OLS methodology is used for analyzing panel data from 1990-2009. The finding is in line with the conventional belief that globalization has increased income inequality.

Bukhari and Munir (2016) analyzed the relationship between the three types of globalization i.e. trade globalization, financial globalization, and technological globalization on income inequality. The study states that globalization has made the world more equal. However, in developing countries, income inequality has risen (World Economic & Social Survey 2013). The impact of globalization has not evenly spread in society. Some of the segment of society has benefited from it a lot more than the other segment. A combined wealth of 500 wealthy people of the world has more wealth than 2.5 billion poor people of the world (Watkins et al., 2005). To check the relationship between the three types of globalization on income inequality, the study has used a method of pooled OLS and IV least square technique on panel data for selected Asian countries. From 1980 to 2014 for trade and technological globalization model, while 1990 to 2014 for financial globalization model. The result of the study shows that only one type of globalization increases the income inequality that is financial globalization however, the other two; technological and trade globalization reduce income inequality to a significant level. The study also uses education and FDI as an independent variable that empirically proves that FDI has a positive relationship with income inequality while education counters income inequality. The study in its suggestion states that government should work to promote education, build an efficient financial system, liberalized trade, and subsidize trade.

2.2 Foreign Direct Investment Impact on Income Inequality

Couto (2018) analyze the impact of FDI on income inequality within different countries. According to the study, the impact of foreign direct investment is much higher in middle-income countries as compared to the low and high-income countries. The study of the impact of FDI on income

inequality is important because income inequality has a negative relationship with economic growth (Cingano, 2014). It is noted here that, if FDI helps in economic growth, the negative impact of income inequality will counter that positive impact of the FDI. Studies show that FDI increases or decreases income inequality with respect to different countries. It, however, increase income inequality between the skill and unskilled labor because FDI favors skilled labor (Figini & Görg, 2011). The study shows the rise in the Gini coefficient that measures the income inequality within the developing and developed countries over a period of 1990-2013. The study result shows that the FDI induced income inequality is higher in middle-income countries than higher and lower-income countries. Moreover, FDI widens the gap between the income inequality between skilled and unskilled labor. The study also suggested that the focus should be on education to eliminate this difference between skilled and unskilled labor.

Economic researchers nowadays have a great interest in finding the relation between Income inequality and FDI (Assaf, 2017; Tsai, 1995; Choi, 2006; Wu and Hsu, 2012; Bogliaccini & Egan 2017). Khan and Nawaz (2019) examined the relationship between trade and FDI on income inequality for independent commonwealth countries. FDI investment brings technology, management skills production techniques, and competition in the host countries. FDI also produces employment opportunities in developing countries thus decrease income inequality (Chen, 2016). The study takes data from a commonwealth independent state that is 11 in number. The data period is from 1990-2016. The proxies that are used for the measurement of income inequality are the Gini coefficient and the human development index. The study proved that income inequality increases when FDI inward flow increases in a country. Ravinthirakumaran and Ravinthirakumaran also examine the FDI investment impact on income inequality by using the Gini coefficient as an independent variable. For the study, data from 1990-2015 for Asia-Pacific Economic Cooperation (APEC) economies is taken. FDI inflows, gross domestic product (GDP) per capita, trade openness, and human capital are the dependent variable while panel Autoregressive Distributed Lag (ARDL) is used in the study. The study result shows the FDI does not increase income inequality in APEC economies.

Choi (2006) state that in recent time FDI has increased with which this concern has raised that what are its impacts on income inequality. FDI has reduced income inequality when FDI helps in employing unskilled labor (Deardorff& Stern, 1994). However, income inequality increases, when FDI increase wages in a specific sector as compared to another traditional sectors (Girling, 1973; Robinson, 1976; Bornschier and Chase-Dunn, 1985; Tsai, 1995). The study uses data of 119 countries from 1993-2002 and empirically proved that income inequality, The Gini coefficient, a proxy for income inequality, and increases with an increase in FDI. FDI a factor that not only increases income inequality between skilled and unskilled labor, but it also increases regional inequality (Bhandari, 2007).

2.3. Corruption Impact on Income Inequality

Brempong (2002) examined the impact of corruption on economic growth and income distribution in African countries. The study also proves that corruption has a positive correlation with income inequality and raise income inequality. As a result of income inequality, living standard decreases in African countries. The study further states that a one-point increase in corruption index is associated with a 7 percent increase in the Gini Coefficient of income inequality. Similarly, khan and Naeem(2020) and Saha et al. (2020) also proved that corruption has great impact on income inequality. Their study focused on developing economies and showed that corruption has positive impact on income inequality in developing economies. Most of the developing economies are suffering from the disease of corruption. Corruption is a major contributor to income inequality. According to a

study corruption affects resource allocation in two ways; corruption induced price hike of services and good and unfair resource allocation. Furthermore, according to a study, there is bidirectional causality which means that corruption causes inequality and inequality causes corruption (Ullah and Ahmad 2016). Salatin (2017) explains corruption as the abuse of public resources for personal interest, unnecessary increase of paperwork (Red trapezium), bribes, utilization of public budget to personal interest, escaping taxes on import and export, or influences other firms to maintain the monopoly. The study aimed to determine the impact of corruption in middle-income countries on income inequality. For the examination of relation, the study uses data from the World Bank (1996-2013) and multivariate regression. The study result shows that financial corruption has a positive and significant impact on the Gini coefficient.

When there is corruption, there is less faith in leaders and institutions. Moreover, there is no honest and fair institution (Uslainer, 2006). When corruption increases, income inequality increases (Gupta et al. 2002; Brempong, 2002; Brempong & Camacho 2006). Ullah and Ahmad (2016) analyzed the relationship between corruption and income inequality. The study takes panel data of 71 countries and applied the Generalized Method of Moments (GMM) test to check the impact of corruption. The results show that corruption has a significant positive impact on income inequality.

There is a lot of work available on the impact of Globalization, FDI and institutional factor on income inequality. However there is no proper study availability on impact of these factors on income inequality in SAARC countries. There are studies but those studies analyzed the individual impact each variable on income inequality in SAARC countries. Furthermore, we have taken corruption as institutional factor and GDPPC and Government Expenditure as controlled variable that also add a unique feature to our study and this will fill the existing research gap on income inequality in SAARC countries.

The previous researches clearly indicate that globalization is an important factor for income inequality. There a debate between researchers that what is the impact of globalization whether is it positive or negative. The evidence from both side are sufficient to build a belief. However, this is the beauty of research that each result paws way for another problem or another result. So the research is going on globalization impact on income inequality. With reviewing the previous literature we also come to know that globalization is a broad term and encompasses many other terms and variable ; financial globalization, trade globalization, technological globalization, social globalization etc. each has its own impact on income inequality. Similarly, FDI impact on income inequality is also a hot debated topic. According to existing literature its impact on different classes of society is different. Its overall impact is positive because FDI normally benefitted the skill labor and educated labor class that usually existed in middle and higher class. FDI ignores lower and unskilled class of labor that increases income inequality within a country. Similarly within the world the developed countries get more benefit as of developing society according to the existing literature. Moreover, corruption is a term that means division from due right, merit and equality. All existing studies with exception of few are in unity that income inequality increase as corruption increase within a country.

3. Data and Methodology

3.1 Data Sources

The panel data that is used in this research has been collected from different sources. The period for the data is from 2002-2019 for selected SAARC countries (Afghanistan, Bangladesh, Bhutan, India, Pakistan, Nepal, and Sri Lanka). The period is constrained by the availability of data for the

given countries that why the given data set has been taken to avoid any missing data. All the data has been taken from World Development Indicators (WDI from 2002-19), Corruption Perspective Index (CPI), and Standardized World Income Inequality Database (SWIID from 2002-19). In this study, we have regressed Gini Coefficient with Trade Globalization (Trade openness), corruption, and foreign direct investment to check whether these explanatory variables have any impact on income inequality or not. Gini coefficient is a widely used indicator for income inequality. Gini coefficient measure income inequality from 0-100, 0 being the country with perfect income equality while 100 is the country with maximal income inequality. In this study, we have also used GDP per capita and government effectiveness as the controlled variable. The data of trade, FDI, corruption, GDP per capita, and Government effectiveness is from the WDI database while data from the Gini coefficient is from SWIID version 5.

TABLE.3

Variable Explanation				
VARIABLES		Symbol	Measurement	Data 2002-19
Income Inequality		GINI	Gini Coefficient	SWIID Version 5, Harvard university World Development Indicator (WDI).
Trade Globalization		TRADE	Net trade in goods and services (BoP, current US\$)	
Foreign Direct Investment		FDI	FDI, net inflow (BOP, current US\$)	
Corruption		COR	corruption perspective index	Corruption Perspective Index (CPI).
Control Variables				
GDP Per Capita	GDPPC	GDP per capita (current US\$)		
Government Effectiveness	GE	Government Effectiveness: Estimate		World Development Indicator (WDI).

Corruption is a broad concept that exist some hidden activities that are also contributed to the prevalence of corruption. Furthermore, some activities are illegal in one country and legal in another country that why we use the corruption perspective index instead of any definite quantitative variable similarly the Gini coefficient that is used in the study lack some inconsistencies that why we use sufficient proxies for the missing data with the help of data analysis tool.

3.2. Theoretical Foundation of the Model

The following model has been used in our study that is equation 3.1. The same model was also used by Omeju and Adesanya (2012) and similar model is used by Azam (2019) ;Bukhari and Munir (2016) for analyzing income inequality against different economic variables.

3.3. Empirical Model

$$GINI_{it} = \beta_0 + \beta_1 TRADE_{it} + \beta_2 COR_{it} + \beta_3 FDI_{it} + \beta_4 GE_{it} + \beta_5 GDPPC_{it} + U_{it} \dots\dots\dots(1)$$

Where

GINI = Gini Co-efficient

TRADE = Trade openness

COR = corruption perspective index

FDI = Foreign Direct Investment

GE = government effective index

GDPPC = Gross Domestic Product Per Capita

U = Error term

I = SAARC countries
T = Time period

3.4. Econometric Technique

Varies econometric methods are used in this study to find out the correct techniques that efficiently analyze the relationship between the dependent and independent variable. The pooled OLS is suitable for simple data similarly langrage multiplier test is also conducted to check whether POLS is suitable or not; however, we have big panel data and Lagrange multiplier hinted us to go for either FEM or REM. According to Azam (2019) FEM and REM is best for traditional panel regression techniques similarly the study suggested that Huasman (1978) test can be conducted first to check which one of the following two techniques is suitable for the given data. After the Hausman test, the method that efficiently expresses our motive for the study is the Fixed Effective Method (FEM).

Initially, we will regress the Gini coefficient with Corruption, FDI, and trade univariate to check their impact on the Gini coefficient, to measure income inequality. Then we have also taken government effectiveness and GDP per capita as a control variable to check collective impact.

3. Results and Discussion

Initially we tried the pooled OLS method to regress the Gini co-efficient with the independent variables that are mentioned in the above table of the variables to check whether POLS is sufficient for our analysis or we have to move to other methods. According to Wooldridge (2010), pooled OLS is employed when you select a different sample for each year/month/period of the panel data. Fixed effects or random effects are employed when you are going to observe the same sample of individuals/countries/states/cities/etc. According to Wooldridge (2010), pooled OLS is employed when you select a different sample for each year/month/period of the panel data. Fixed effects or random effects are employed when you are going to observe the same sample of individuals/countries/states/cities/etc. according to Zulfiqar (2018) the pooled OLS or the common effect model only incorporated the time series and cross sectional effect of the data ; however, it do not encompass the time and individual dimension. We initially regressed the Gini coefficient with all variables listed in the Variables explanation table. The result of the analysis Pooled OLS is given in Table 4.

Table 4

Descriptive Statistics							
	GINI	C	TRADE	FDI	COR	GE	GDPPC
Mean	39.70125	1.000000	-1.54E+10	5.02E+09	27.77500	-0.512450	1167.347
Median	38.00000	1.000000	-6.00E+09	8.43E+08	27.00000	-0.573487	933.0454
Maximum	49.70000	1.000000	50402525	4.40E+10	60.00000	0.584654	3886.292
Minimum	31.80000	1.000000	-1.36E+11	-6647984.	8.000000	-1.496089	286.1576
Std. Dev.	6.647061	0.000000	2.62E+10	1.07E+10	10.31034	0.493623	863.4465
Probability	0.004748	NA	0.000000	0.000000	0.011960	0.478383	0.000000
Sum	3176.100	80.00000	-1.23E+12	4.01E+11	2222.000	-40.99599	93387.72
Sum Sq. Dev.	3490.490	0.000000	5.43E+22	9.03E+21	8397.950	19.24945	58897649
Observations	80	80	80	80	80	80	80

To check the data that whether the Common Effect Model gives best estimate we run Breusch -Pagan

Test to check, whether the POLS is best or we can go toward the REM. Breusch-Pagan test revealed that the values are significant for the cross section but insignificant for the time. The results are shown in Table 5. This test shows that the Pooled OLS method is not appropriate for the given data. Thus we move toward the REM to check whether, it will give us best estimate or not.

Table 5			
Lagrange Multiplier Tests result			
	Cross-section	Time	Both
Breusch-Pagan	200.6979	2.549833	203.2477
	(0.0000)	(0.1103)	(0.0000)

Table 6 Panel Least Square Model Result						
Variable	Coefficient	Std. Error	t-Statistic	Prob.	R-square	Adj R-square
C _{it}	44.92280	3.485822	12.88729	0.0000	0.676799	0.654961
TRADE _{it}	-1.86E-11	3.55E-11	-0.524075	0.6018		
FDI _{it}	1.59E-10	9.21E-11	1.723676	0.0889		
COR _{it}	-0.159839	0.091081	-1.754904	0.0834		
GE _{it}	8.970633	1.990328	4.507112	0.0000		
GDPPC _{it}	0.002341	0.000647	3.616412	0.0005		

According to Zulfiqar (2018), the reason for using REM is to compensate the difference between the intercept by error term. Moreover it will remove the Heteroscedasticity, that why we will move toward the Random Effect Method (REM/EGLS) the analysis is shown in Table 7. This analysis uses general least square instead of ordinary least square.

Table 7						
Random Effect Model result						
Variable	Coefficient	Std. Error	t-Statistic	Prob.	R-square	Adj R-square
C _{it}	37.80921	2.290316	16.50829	0.0000	0.729254	0.710961
TRADE _{it}	-1.46E-11	2.91E-12	-5.025738	0.0000		
FDI _{it}	2.97E-11	8.24E-12	3.611157	0.0006		
COR _{it}	0.024377	0.011311	2.155132	0.0344		
GE _{it}	-0.105883	0.319479	-0.331423	0.7413		
GDPPC _{it}	0.000215	7.12E-05	3.014341	0.0035		

Whether to check the REC model is appropriate and will give use the best estimate, we applied Hausman Test. The result of Hausman test is given in Table 8. The result is p value < 0.5 thus according to this we moved toward the FEM and concluded that it will be the best estimate for our study.

Table 8			
Hausman Test Result			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.111960	5	0.4024

The test shows that the P-value is less than 0.05. This shows that the REM is in appropriate too. Thus we move toward the Fixed Effect model. The data is appropriate for FEM and shows a sound analysis in table 8.

Initially, we will regress Gini Coefficient with Corruption, FDI and trade uni-variately to check their impact on Gini coefficient, income inequality. Then we have also taken government effectiveness and GDP per capita as a control variable to check collective impact.

Table 9						
Fixed Effect Model result						
Variable	Coefficient	Std. Error	t-Statistic	Prob.	R-square	Adj R-square
C _{it}	38.34243	0.324206	118.2655	0.0000	0.998258	0.997976
TRADE _{it}	-1.46E-11	2.91E-12	-5.001512	0.0000		
FDI _{it}	2.99E-11	8.24E-12	3.631340	0.0005		
COR _{it}	0.023749	0.011333	2.095462	0.0399		
GE _{it}	-0.141317	0.320455	-0.440990	0.6606		
GDPPC _{it}	0.000216	7.12E-05	3.033654	0.0034		

The result shows that TRADEit, CORit, GEit and GDPPCit are significant however, GEit are insignificant variable. There is positive impact of FDIit CORit AND GDPPCit on income inequality. The result in Table shows the coefficient value that with the increase in FDIit CORit and GDPPCit the income inequality measure by GINIit will also increase; however, the study also concluded that TRADEit has negative relation with GINIit. Which means that if when country increases the trade income inequality will decrease.

We will check the impact of TRADEit, CORit and FDIit on income inequality using the FEM model the result of the model are as under:

Table 10						
FEM (except controlled variables) result						
Variable	Coefficient	Std. Error	t-Statistic	Prob.	R-square	Ad R-square
Cit	38.32958	0.300914	127.3773	0.0000	0.998020	0.997766
TRADEit	-1.65E-11	2.90E-12	-5.704280	0.0000		
FDIit	2.87E-11	8.30E-12	3.456245	0.0009		
CORit	0.035026	0.011231	3.118848	0.0026		

If we analyze TRADEit, FDIit and CORit without controlled variable the result are also the same. Income inequality increase with increase in FDIit and CORit however, it decreases with the increase of trade between countries or in other words trade openness.

Discussion on Results

Our analysis showed us that FEM is the appropriate model for our regression. Initially, we use FEM and include controlled variable in the analysis. The result showed that only trade openness has negative impact income inequality in selected countries while the other variables CORit, FDIit, GDPPCit and GEit has positive impact on income inequality. Similarly, when we regress the variables without controlled variables, the result are same only trade openness has negative impact while other has positive impact.

5. Concluding Remarks

The study aims to analyze the impact of globalization, in terms of trade openness, FDI, and corruption on income inequality, in terms of the Gini Coefficient in selected SAARC countries: Afghanistan, Bhutan, Bangladesh, India, Nepal, Pakistan, and Sri Lanka. Panel data has been used for the study for the period 2002-2018. The Fixed Effect Model has been used for the analysis of the data. Test like langrage multiplier and Hausman test are conducted to find the appropriate model for the analysis. Government Effectiveness, in terms of government expenditure and gross domestic product per capita income, is used as controlled variables in the study. The result shows that income inequality increases with the increase of Corruption, FDI GDPPC, and decreases with the increase of trade. Moreover, Government expenditure has an insignificant effect on the GINI coefficient according to this study.

Policy Recommendations

The finding of this study suggests the problems and possible solution to it. Corruption has a considerable impact on income inequality. It is the core reason for any kind of inequality within an economy Uslaner (2011), Brempong (2002), Gupta et al. (1998). The accountability and corruption prevention mechanisms of SAARC countries are very weak which need immediate attention. Being developing countries and weak political and administrative system these countries are on the high list of corruption perspective index. SAARC countries should world toward better accountability, take steps to curb corruption and effective political and administrative stability

Lindert and Williamson (2001), Bukhari et al (2006), wang and Dayananda (2009) considered globalization good for curbing widening income inequality. This study suggested the same. The governments of the SAARC countries must move toward trade openness and globalization. More lenient and trade-oriented policies should be adopted to encourage trade to and out of the country to decrease income inequality.

FDI is necessary for economic growth but must be handle with causation to minimize its impact on income inequality Choe and Ramirez (2016). The government should deal with income inequality in such a way that it benefits all the classes of society adequately. The FDI must be channeled to eliminate the income inequality not to further widen it.

The governments must make efforts to minimize the gap between the income gap of the individuals. The income gap between the individuals is very high and as GDPPC increases the gap is further swelling. The side needs the immediate attention of the government.

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